

Health Impacts of Diesel Exhaust

Diesel engines are a part of our everyday life. They are used to power many types of vehicles and equipment in industries such as transportation, construction, agriculture, manufacturing, and more.¹ When diesel fuel is burned, it produces pollutants that can harm human health.

What is Diesel Exhaust?

Diesel Exhaust is a mixture of gases and tiny particles that are emitted during combustion of diesel fuel.² It contains, but is not limited to:

- Carbon Monoxide,
- Sulfur Dioxide,
- Aldehydes (formaldehyde, acrolein, acetaldehyde),
- Benzene,
- Sulfuric acid,
- Trace metals (such as cadmium and arsenic),
- Nitrogen Oxides,
- Ammonia, and,
- Diesel particulate matter (DPM) – primarily made up of soot, carbon, ash, metallic abrasion particles, sulfates, and silicates.³

Who is at Risk of Exposure to Diesel Exhaust?

Anyone exposed to any amount of diesel exhaust may experience negative health impacts. However, more exposure increases risk.

Some people who may have higher-than-average levels of diesel exhaust exposure include:

- Those who work around diesel engines, especially if they spend time in areas where the diesel exhaust can accumulate, such as high-traffic areas, warehouses, and garages;
- Those who drive or ride in diesel vehicles, such as school buses or heavy trucks; and
- Those who live and/or work near a high-traffic corridor.

It is also important to note that certain individuals can be more sensitive and have a greater risk of health impacts due to inhaling diesel exhaust.

The people most sensitive to the health effects of diesel exhaust are:

- People with heart or lung disease;
- People with asthma, allergies, or other respiratory problems;
- Senior citizens; and,
- Children.



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Health Effects of Diesel Exhaust

Short term exposure to high concentrations can cause:

- Asthma attacks;
- Mild to severe headache;
- Dizziness;
- Irritation of the eye, nose and throat;
- Chest tightness and wheezing; and,
- Increased allergic reactions to dust, pollen, and other allergens.⁴

Long-term exposure can cause:

- Chronic cough and mucus;
- Decreased lung function;
- Worsening of heart and lung diseases;
- Increased risk of lung cancer;⁵ and,
- Premature death.

Environmental Effects of Diesel Exhaust

- Creates haze, which reduces visibility.
- Contributes to formation of ground-level ozone, which can harm human health and vegetation.
- Contributes to climate change.⁶

How Can You Reduce Emissions from Diesel Engines?

- Replace older diesel engines with cleaner and/or more efficient engines, such as newer diesel engines or alternative fuel engines.
- Regularly inspect and maintain engines.⁵
- Implement an anti-idling policy.
- Limit idle times to manufacturer recommendations.
- Turn off engine as soon as possible after arriving at loading and unloading areas.

References

1 <https://www.osha.gov/sites/default/files/publications/OSHA-3590.pdf>

2 <https://www.mountsinai.org/files/MSHealth/Assets/HS/Patient%20Care/Service-Areas/Occupational%20Medicine/Diesel%20Exhaust%20Exposure.pdf>

3 https://www.ccohs.ca/oshanswers/chemicals/diesel_exhaust.html

4 <https://biomonitoring.ca.gov/sites/default/files/downloads/DieselExhaustFactSheet.pdf>

5 <http://nycosh.org/wp-content/uploads/2014/10/FS-Diesel2-2.pdf>

6 <https://www.epa.gov/dera/learn-about-impacts-diesel-exhaust-and-diesel-emissions-reduction-act-dera>

How Can You Limit Exposure to Diesel Exhaust?

- Reduce time spent near exhaust.
- Run engines outdoors or ensure proper indoor ventilation.
- Roll windows up and turn off the outside air source while inside a running diesel vehicle.
- Work from home when possible;.
- Avoid heavily trafficked routes.
- Use personal protective equipment, such as respirators, if working around diesel engines.
- Limit caravanning – position vehicles so tailpipes do not blow directly toward other vehicles.
- Ride at the front of a bus, where exhaust is less likely to enter and accumulate, and (when appropriate) encourage others to do the same.
- Reduce the amount of time riders must wait near idling buses and vehicles, or have riders wait indoors.
- Adopt anti-idling zones at your workplace.

Contact Us

If you have further questions, please contact the Oklahoma Department of Environmental Quality's Air Quality Division at **(405) 702-4100**.